

REMARKS

The Examiner indicated that claims 2-6, 15, 19-20, 23-24, 29-31 and 35-37 were objected to as being dependent upon a rejected base claim, but that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. In response, Applicant has rewritten claims 2, 19 and 35 in independent form. Applicant submits that claim 35 as amended does therefore not require the limitations of claim 34, namely the shape of the projection and recess, to be specified in the rewritten claim. This is because the clamp is the actual limitation which makes claim 35 allowable. Applicant has therefore changed the dependency of claim 34 from claim 33 to claim 35. Applicant has made minor amendments to claims 3, 15, 20, 23 and 30 to correct spelling errors and to ensure that antecedent bases for various limitations were correct. Applicant respectfully submits that claims 2-6, 15, 19, 20, 23, 24, 29-31 and 35-37 are now in condition for allowance.

The Examiner rejected claims 11-14, 16-17, 27-28 and 42-44 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. In response, Applicant has done the following:

Claims 11 and 16 were rejected as incomplete inasmuch as they omit essential structural cooperative relationships of elements such as the first header and the stub

(recited at line 4). The Examiner stated that such omission amounted to a gap between the necessary structural connections. **In response**, Applicant has amended claim 11 by inserting wording to indicate that the lower surface of the stub includes one of a recess and projection and the first reusable header includes a complementary recess or projection and that the complementary shaped recess and projection on the stub and first reusable header are interlocked together. With respect to claim 16, Applicant has similarly amended this claim by adding wording to describe the interlocking complementary shaped projection and recess on the second stub and second reusable header. Applicant submits that these amendments overcome the Examiner's rejection of these claims and of the dependent claims 12 and 17 and respectfully requests reconsideration of these rejected claims.

In response to the rejection of **claim 13**, Applicant has changed the phrase "a first electrode" to read - - the first electrode- -. Applicant submits that this amendment overcomes this rejection.

The Examiner indicated, in reference to **claim 27**, that there is insufficient antecedent basis for "the ... third reusable header" recited at line 2 in the claim or from the preceding claim. In response, Applicant has amended the dependency of claim 22 (which is one of claim 27's preceding claims) to claim 20. Claim 20 has been amended by changing the phrase "the... third reusable header" to "a.. third reusable header" on line 3 thereof. Applicant submits that these amendments overcome the Examiner's rejection of claim 27 and 28 under 35 U.S.C. 112, second paragraph.

The Examiner further indicated, in reference to **claim 42**, that there are insufficient antecedent bases for "the recess and projection" cited at lines 1-2 in the

claim or in the preceding claim. In response, Applicant has amended claim 40 (from which claim 42 indirectly depends) to include antecedent bases for the recess and the projection. Applicant has also amended claim 42 to clarify the components that include "the recess and the projection". Applicant submits that this amendment overcomes the Examiner's rejection of claim 42 and therefore claims 43 and 44 under 35 U.S.C. 112, second paragraph.

The Examiner further indicated that claims 13-14, 16-17 and 43-44 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph and to include all of the limitations of the base claim and any intervening claims. In response as discussed above, Applicant has addressed the 35 U.S.C. 112, second paragraph, rejections of claim 13, 16 and 42 (from which claims 43-44 depend). Claims 16 and 17 depend indirectly from allowable claim 2. Claims 43 and 44 depend indirectly from allowable claim 35 (inasmuch as the dependency of claim 38 has been changed from claim 32 to claim 35). Applicant therefore respectfully submits that claims 16, 17, 43 and 44 are now in condition for allowance. With respect to claims 13 and 14, Applicant is currently electing not to rewrite claim 13 in independent form, pending the Examiner's reconsideration of claim 1 from which it depends. Should the Examiner not find the Applicant's arguments in regard to claim 1 persuasive, then the Applicant will rewrite claim 13 in accordance with the Examiner's recommendations.

The Examiner rejected claims 1-7, 12, 18, 21-22, 25-28, 32-34 and 38 under 35 U.S.C. 102(b) as being anticipated by Zanner et al (US 5,373,529). The Examiner

stated that Zanner et al shows a method of manufacturing electrodes in which a first electrode 30 is attached to a first reusable header or upper ram, heating the electrode to a temperature sufficient to be melted and dripped into a crucible to form an ingot. **In**

response, Applicant has amended **claim 1** to include the limitations that;

1. the first reusable header has a shaped first end and the second electrode is molded to have at least a portion complementary to the shaped first end of the header;
2. that the second electrode is inverted;
3. that the shaped portion of the second electrode is engaged with the shaped first end of the first reusable header.

Zanner discloses that the electrode is attached to the upper ram “using attachment methods known in the prior art”. The drawings in the patent do not show a header member interposed between the electrode and the ram, they show the electrode directly attached to the ram and it can therefore be assumed that the electrode is welded onto the ram. There is no disclosure in Zanner of the inverting of the second electrode. Furthermore, inasmuch as the ingot that solidifies in Zanner’s crucible would have a shaped recess in one end - inverting the ingot to weld it to the ram would be counterproductive as the size of the weld between the two components would be greatly reduced and therefore the strength of the weld would be greatly reduced. If one considers the other art located by the Examiner, none of Inouye, Berry et al, Timmons and Soykan disclose inverting the electrode formed in the crucible in order to attach the same to a reusable header or to an upper ram for remelting in the crucible. Anticipation

requires that each and every limitation of the claim be disclosed by the prior art reference. Inasmuch as Zanner does not disclose a method of manufacture that includes inverting the second electrode and then engaging the second electrode with a reusable header, Applicant respectfully submits that Zanner does not anticipate claim 1 of the instant application and that claim 1 is therefore allowable over this reference. Furthermore, because claim 1 is not anticipated, Applicant respectfully submits that claims 2-7 and 12 are also allowable.

Applicant has also amended **claim 18** to include the limitations that:

1. the reusable header is manufactured from substantially the same material as the second electrode;
2. the second electrode is formed with one of a projection and recess therein and the reusable header is formed with the other of a projection and recess therein;
3. and that the second electrode is clamped to the reusable header when the projection is engaged in the recess.

Applicant respectfully submits that Zanner does not disclose the use of a header manufactured from substantially the same material as the second electrode. Zanner discloses that the second electrode is formed with a recess therein by virtue of the lower ram having a projection on its upper surface. However, Zanner does not disclose that the upper ram have a projection formed thereon to engage with the recess formed in the electrode. Furthermore, Zanner does not disclose that the header and second electrode be clamped together. Zanner therefore does not disclose each and every limitation of claim 18 and therefore does not anticipate this claim. Applicant respectfully

submits that claim 18 is therefore in condition for allowance.

With respect to the remaining claim, the dependency of **claims 21, 22 and 25** has been changed so that these claims are now directly or indirectly dependent from rewritten allowable claim 19. Applicant submits that, because of this amendment, claims 21, 22 and 25-28 are now in condition for allowance.

As discussed previously, Applicant has **canceled claims 32-33** because the subject matter of these claims has been incorporated into amended claim 35. Furthermore, the dependency of **claims 34 and 38** has been amended so that the claims now depends from rewritten independent claim 35, which claim the Examiner has indicated would be allowable. Applicant therefore submits that claims 34 and 38 are also now in condition for allowance.

The Examiner rejected claims 32 and 38-41 under 35 U.S.C. 102(b) as being anticipated by Singo Inouye (US 3,391,239). The Examiner stated that Inouye shows a reusable header (Fig. 2) comprising a base 39,41 having first and second ends with a shaft 39 extending from the first end of the base, an attachment 40,42 for releasably securing an electrode 28 to the second end of the base 39, 41, wherein at least a section 41 of the header is manufactured from the same metal material with the electrode and the section 41 is also a detachable stub which has an area complementarily shaped to the shaped portion of the header for interlocking the header and the electrode 28 can be integrally bonded with the stub 41 by threaded attachment 42. **In response**, as stated above, Applicant has **canceled claim 32** and has incorporated its limitations into claim 35. The Applicant has amended **claim 38** by

changing its dependency to allowable claim 35. The Examiner indicated in the statement of reasons for the indication of allowable subject matter, that the use of the clamp as recited in claim 35 and 43 is found allowable. Inouye does not show the use of a clamp as required by claim 35 and therefore does not disclose each and every element of the claimed invention and consequently Inouye does not anticipate claim 35 and therefore claims 38-41 are also not anticipated. Applicant submits that these amendments overcome the Examiner's rejection of claims 38-41 under 35 U.S.C. 102(b) as being anticipated by Inouye and submits that these claims are now in condition for allowance.

The Examiner rejected claims 1, 18, 32-34 and 38-42 under 35 U.S.C. 102(b) as being clearly anticipated by Berry et al (US 2,955,333). In response to the previous rejection and as discussed previously Applicant has canceled claims 32 and 33 and has amended the dependency of claims 34 and 38 to allowable claim 35. Claim 35 includes the limitation of the clamp, which element is not disclosed by Berry et al. Berry et al therefore does not disclose each and every limitation of claim 35 and therefore does not anticipate either claim 35 or claims 34 and 38-42. Applicant therefore submits that claims **34 and 38-42** are therefore allowable.

With respect to the rejection of claim 1, there is no disclosure in Berry et al of the limitation that the second electrode be inverted during processing. Furthermore, there is no disclosure that the shaped portion of the second electrode can be interlocked with the shaped first end of the first reusable header - the patent shows that the ends of the upper ram and electrode merely abut each other. Inasmuch as not each and every limitation of claim 1 has been disclosed, Applicant submits that Berry et al does not

anticipate the claimed invention and requests that claim 1 be allowed.

With respect to the rejection of claim 18, Applicant has amended the claim to include wording to the effect that the shaped ends of the electrode and header are interlocked with each other and the electrode and header are clamped together. Berry et al does not disclose that the ends of the electrode and header are shaped, nor does the reference disclose that the shaped ends are interlocked with each other, nor does the reference disclose that the electrode and header are clamped together (which feature the Examiner indicated was novel over the prior art). Consequently, each and every limitation of claim 18 is not disclosed by Berry et al and the reference therefore does not anticipate claim 18. Applicant therefore respectfully requests the withdrawal of the rejection of claims 1, 18, 34, 38-42 under 35 U.S.C. 102(b) as being anticipated by Berry et al.

Applicant has added new claims 45-50. Claims 45-48 depend from amended claim 1 and claims 49 and 50 depend from amended claim 18. Applicant respectfully submits that, as has been argued above, both claim 1 and claim 18 are allowable over the cited prior art and that consequently claims 45-50 are therefore also allowable over the art.

If it is believed that a telephone discussion would advance the prosecution of this matter, the Examiner is invited to contact the undersigned at (330) 244-1174.

Respectfully submitted at Canton, Ohio this 13th day of June, 2005.

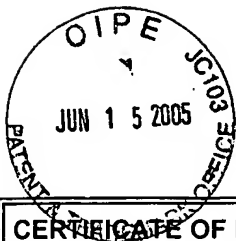
SAND & SEBOLT

A handwritten signature in cursive script, appearing to read "Fiona Ferguson".

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Serial No.	Filing Date	Examiner	Group Art Unit
10/718,045	11/20/2003	Tu Ba Hoang	3742
Invention: METHOD OF MANUFACTURING ELECTRODES AND A REUSABLE HEADER FOR USE THEREWITH			

I hereby certify that the following correspondence:

Amendment A

is being deposited with the United States Postal Service as first class mail in an envelope addressed to:
Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

June 13, 2005

(Date)

Karina A. Butler

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(Signature of Person Mailing Correspondence)